



# CO<sub>2</sub> NDIR Module

## Model : B-530G

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### DATA SHEET

#### General

The B-530G CO<sub>2</sub> module is designed to have robust and reliable stability, persistent high accuracy independent from Temperature for the use in harsh environment.

The Sensor is sealed to be resistance to 99% humidity harsh environment.

#### Features

- Non-Dispersive Infrared (NDIR) technology used to measure CO<sub>2</sub> levels.
- Robust to show high stability and strength under extreme condition.
- Resistant to 99% humidity.
- Pre-calibrated
- 3 and 7 pin connector is available.
- UART, AVOoutputis available.

# B-530G CO<sub>2</sub> Module

## Specifications

### General Performance

#### Operating Temperature

-10 ~ 60°C

#### Operating Humidity

0 ~ 99% RH (Non-condensing)

#### Storage Temperature

-40°C ~70°C

### CO<sub>2</sub> Measurement

#### Sensing Method

NDIR (Non-dispersive Infrared)

#### Measurement Range

0 to 2,000/3,000/5,000/10,000 ppm

0 to 2%, 3%, 5% vol. (Option)

#### Accuracy

0 to 10,000ppm : ±30ppm ±3% of reading

2%, 3%, 5% vol.: ±300ppm ±3% of reading

#### Step Response Time(90%)

120 sec

#### Sampling Interval

3 seconds

### Electrical Data

#### Power Input

9 to 18VDC (±10% Regulation)

#### Current consumption

Normal : 25 mA / Peak : 130mA

#### Output connector

3Pin / 7Pin (Molex 053015)

### Output

#### Digital

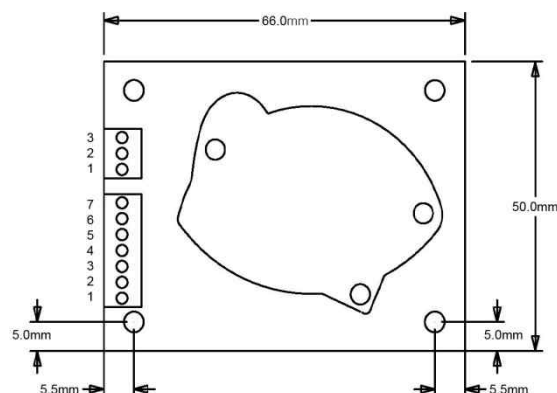
UART

Asynchronous serial, TTL Level, 38,400bps

#### Analog Voltage Output

VDC 0.5 ~ 4.5V (linear output)

### Dimensions



### Connections

#### Connector 1 (CN1)

Pin No.	Name	Description
1	VCC	Power
2	AVO	Analog Voltage Output
3	GND	Power Ground

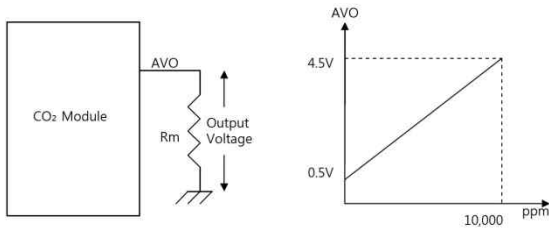
#### Connector2 (CN2)

Pin No.	Name	Description
1	NC	No Connection
2	TX	UART TX
3	RX	UART RX
4	GND	Power Ground
5	NC	No Connection
6	NC	No Connection
7	AVO	Analog Voltage Output

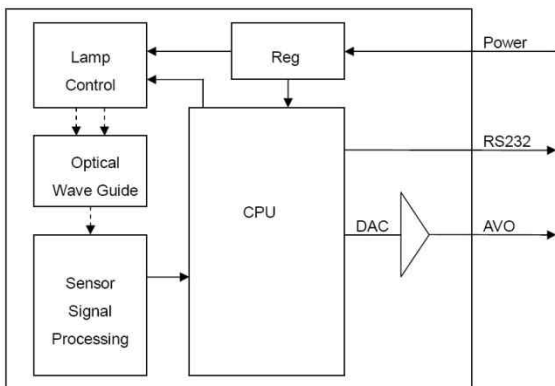
## Output Description

### Analog Voltage Output

Output Range	0.5 ~ 4.5V (linear output)
Output Resolution	12 bits
Minimum Load(Rm)	10 KΩ



### Block Diagram



### UART Protocol

Item	Description
Baud rate	38,400 BPS
Parity	No Parity
Number of Bits	8 Bits
Stop Bit	1 Bit

### Data Transmit

Interval : 3 seconds

Handshake protocol : None (Data is transmitted to outer device periodically)

### Data Format

B1	B2	B3	B4	BL	'p'	'p'	'm'	CR	LF
B1 ~ B4				4 byte CO2 density string					
BL				Blank: 0x20					
'ppm'				'ppm' string					
CR				Carriage return : 0x0D					
LF				Line feed : 0x0A					

EX) In case 1,255 ppm,

0x31 0x32 0x35 0x35 0x20 0x70 0x70 0x6D  
0x0D 0x0A

'1255 ppm<CR><LF>'

if the concentration value is less than 1,000, the space(0x20) characters is filled on previous empty digit.

### Operating mode (Jumper selection)

Jumper "D" :Factory calibrated operating mode

Jumper "F" :ACDL(Self-recalibration)operating mode

Jumper "Z" :Manual recalibration mode

(Re-cal the factory calibration."D")

**\* Refer ACDL/MCDL user manual to find detail information.**